

COMPOSITIONS AND METHODS FOR DETERMINING  
ANTI-VIRAL DRUG SUSCEPTIBILITY AND RESISTANCE  
AND ANTI-VIRAL DRUG SCREENING

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**ABSTRACT**

10 This invention provides a method for determining  
susceptibility for an HCV or HCMV anti-viral drug  
comprising: (a) introducing a resistance test vector  
comprising a patient-derived segment and an indicator gene  
15 into a host cell; (b) culturing the host cell from (a); (c)  
measuring expression of the indicator gene in a target host  
cell; and (d) comparing the expression of the indicator gene  
from (c) with the expression of the indicator gene measured  
when steps (a)-(c) are carried out in the absence of the  
20 anti-viral drug, wherein a test concentration of the anti-  
viral drug is present at steps (a)-(c); at steps (b)-(c); or  
at step (c). This invention also provides a method for  
determining HCV or HCMV anti-viral drug resistance in a  
patient comprising: (a) determining anti-viral drug  
25 susceptibility in the patient at a first time using the  
susceptibility test described above, wherein the patient-  
derived segment is obtained from the patient at about said  
time; (b) determining anti-viral drug susceptibility of the  
same patient at a later time; and (c) comparing the anti-  
30 viral drug susceptibilities determined in step (a) and (b),  
wherein a decrease in anti-viral drug susceptibility at the  
later time compared to the first time indicates development  
or progression of anti-viral drug resistance in the patient.  
This invention also provides a method for evaluating the  
35 biological effectiveness of a candidate HCV or HCMV anti-  
viral drug compound. Compositions including resistance test  
vectors comprising a patient-derived segment comprising a  
HCV or HCMV gene and an indicator gene and host cells  
transformed with the resistance test vectors are provided.

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